

ABSTRACT OF THE DISCLOSURE

An injection molding apparatus that includes a nozzle having a nozzle channel, a mold cavity in communication with the nozzle channel of the nozzle for receiving a melt stream of moldable material from the nozzle channel through a mold gate; and a valve pin that is axially movable through the nozzle channel of the nozzle between a first retracted position in which the valve pin closes the mold gate to block melt flow between the nozzle channel and the mold cavity, an extended position in which an end portion of the valve pin extends through the mold gate and into the mold cavity, and a third retracted position in which the end portion of the nozzle pin is withdrawn from the mold cavity into the nozzle and spaced apart from the mold gate thereby opening the mold gate. The end portion of the valve pin defines a melt flow path on an outer surface thereof that extends through the mold gate when the valve pin is in the extended position for transmitting the melt stream from the nozzle channel to the mold cavity when the valve pin is in the extended position.